

**Rule 1112. Emissions of Oxides of Nitrogen from Cement Kilns**

(a) Definitions

For the purposes of this rule, the following definitions shall apply:

- (1) Cement kiln is a device for the calcining and clinkering of limestone, clay and other raw materials in the dry-process manufacture of gray cement.
- (2) Clinker is a mass of fused material produced in a cement kiln from which the finished cement is manufactured by milling and grinding.
- (3) Energy recovery is the use of waste heat from a permit unit in another permit unit on the same premises so that not less than five percent of the total waste heat is recovered for useful purposes at the first stage of heat transfer.
- (4) Start-up is that period of time during which a cement kiln is heated to operating temperature from a lower temperature.
- (5) Shut-down is that period of time during which the cement kiln is allowed to cool from operating temperature to a lower temperature.

(b) Requirements

- (1) No person shall operate a cement kiln capable of discharging nitrogen oxides into the atmosphere unless such discharge of nitrogen oxides into the atmosphere is limited to no more than 3.1 lbs, of nitrogen oxides per ton of clinker produced.
- (2) For installations using energy recovery, the emission limit shall be based on the following equation:

$$\frac{\text{Energy Recovery Based}}{\text{Emission Limit}} = \text{Emission Limit} \times A$$

$$\text{Where: Emission Limit} = 3.1 \text{ lbs. NO}_x/\text{ton of clinker}$$

$$A = 1 + \frac{\text{Energy Recovered (BTU/hr)}}{\text{Kiln Heat Input (BTU/hr)}}$$

- (3) The energy recovered shall not be required for compliance with any other District rule, used as an offset pursuant to Regulation XIII, banked as an emission reduction credit, nor used for alternative emission control pursuant to Rule 1100.
- (4) Kiln Heat input shall be based on the higher heating value of the fuel fired.

## (c) Compliance Determination

- (1) All emission determinations shall be made in the as-found operating condition, except no compliance determination shall be established during start-up, shut-down, or under breakdown conditions.
- (2) For the purposes of this rule, nitrogen oxides shall be calculated as NO<sub>2</sub> on a dry basis, or by an alternative method approved by the Executive Officer.
- (3) The averaging time for the measurement of nitrogen oxides for compliance determination shall be 3 hours, except if an operator installs and operates a continuous NO<sub>x</sub> monitor in accordance with conditions set forth by the Executive Officer, the averaging time may be extended to 24 hours.
- (4) The following expression shall be used to convert uncorrected observed volume in parts per million of NO<sub>x</sub> to pounds of NO<sub>x</sub> per ton of clinker produced at standard conditions of 68° F and 29 inches of mercury:

$$\frac{(\text{PPMV NO}_x)(46 \text{ grams/mole})(1.56 \times 10^{-7})(\text{SDCFM})}{\text{Ton/hour of clinker}} = \frac{\text{lbs. NO}_x}{\text{Ton of Clinker}}$$

## (d) Effective Date

The operator of any cement manufacturing facility, subject to this rule, shall comply with the provisions of this rule on or before July 1, 1986. The Executive Officer shall, within 30 days after January 1, 1986, conduct a public hearing to review the emission limit of 3.1 pounds of NO<sub>x</sub> per ton of clinker produced. If the Executive officer determines that the emission limit is not supported by the evidence presented at the public hearing, the compliance date and/or the emission limit shall be modified to the extent supported by the evidence.